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Research Article

Distribution, community composition and vulnerability of fish species in the Algeti River Basin (Georgia)

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Abstract

This study presents the first comprehensive survey of fish species' diversity and distribution in the Algeti River and its reservoir in Georgia, a region within the Caucasus biodiversity hotspot. The research, conducted between 2016 and 2022, identified 19 fish species, including nine native to the Kura River basin and ten introduced or invasive species. The construction of a hydro power plant (HPP) dam in the 1980s and other subsequent anthropogenic activities have significantly altered the river ecosystem, creating distinct upstream, reservoir, and downstream sections with varying fish communities.

The study reveals a concerning ongoing impact of anthropogenic factors on the Algeti River's fish fauna and whole ecosystem. The dam impedes fish migration; in addition, pollution, particularly in the mid-downstream section, has led to habitat degradation and a decline in native species. The introduction of non-native species, including predatory and bioturbator species, poses a substantial threat to the native fish populations.

Our findings highlight the urgent need for conservation action to mitigate these threats. While the river's headwaters are within a protected area and some species are on the Red List of Georgia, alone these designations are insufficient safeguard. Effective conservation strategies must include stricter enforcement against illegal activities like poaching, as well as better pollution control and habitat management to preserve the Algeti River's biodiversity. This baseline study provides critical data for future research and conservation planning in this ecologically important region.

Key words: Artificial barriers, Freshwater, HPP dam, Invasive, Reservoirs, South Caucasus

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Introduction

According to the World Wide Fund for Nature's 2021 report, freshwater habitats occupy just 1% of the Earth but support almost 19000 fish species, or over 50% of the world's fish diversity (WWF, 2021; Fricke et al. 2025). Freshwater fisheries are the main source of protein for 200 million people in Asia, Africa, and South America and provide jobs and livelihoods for millions of families. In addition, freshwater fish stocks provide two of the world's largest global industries: recreational fishing, which generates 100 billion US dollars annually, and the aquarium fish trade, which has an annual turnover of 30 billion US dollars as aquarium fish are the most popular pets in the world (WWF, 2021). In addition to the fisher-

ies, freshwater ecosystems and their biodiversity represent a valuable natural resource from economic, cultural, scientific, and educational perspectives (Strayer, 2010). It is probably not surprising that the freshwater ecosystems are being degraded at a faster rate than any other terrestrial ecosystems (Dudgeon et al. 2006) due to multiple factors, most of which are of human origin. The non-exhaustive list of these factors includes water pollution from domestic waste, sewage, industrial waste, gravel mining and the construction of hydropower plants. In addition, flow modification and fragmentation, water abstraction and overconsumption, the introduction of non-native and invasive species, as well as poaching, all impact on freshwater ecosystems (Simon et al. 1995; Kuylenstierna et al. 1998; Leprieur et al. 2008; Gherardi 2010; Arthington et al. 2016). As a result, freshwater biodiversity is declining at an alarming rate, populations of vertebrates in freshwaters have declined by 80% over the past 50 years; twice the amount of decline in marine and terrestrial ecosystems (Darwall et al. 2018).

Freshwater fish species are seriously threatened in many parts of the world, the main causes include habitat modification, invasive species, pollution, and overfishing (Miller et al. 1989; Leidy and Moyle 1998). Of the 117 native fish species found in the South Caucasus region's freshwaters (including migratory species), 12% are considered threatened according to the IUCN Red List (https://www.iucnredlist.org); the status of four species are defined as vulnerable (VU), one species as endangered (EN), and nine species as critically endangered (CR) (Kuljanishvili et al. 2020; Epitashvili et al. 2020; Freyhof et al. 2021; Epitashvili et al. 2023a). Determining risk assessments of freshwater habitats, conservation planning, development of fisheries management tools, and conservation improvement are important challenges for scientists, managers and citizens, especially in light of existing threats and given future climate change scenarios (Arthington et al. 2016). The threats and challenges mentioned above are particularly prominent in the developing regions of the world, which include the so-called biodiversity hotspots in the Caucasus region, and in particular, in Georgia. Although Georgia is a small country (up to 70,000 km²), it is rich in freshwater ecosystems and resources. It has a dense network of rivers draining into the Black and Caspian Seas and over 640 lentic freshwater bodies (Abkhazava 1975), most of which are found in Eastern Georgia. In addition, there are 34 irrigation and nine hydropower reservoirs in Georgia (Ninua et al. 2013; Berdzenishvili 2017).

One of these Georgian rivers, the Algeti, is located in the Kvemo Kartli region (Caspian Sea basin), within the territorial boundaries of Tetritskaro and Marneuli municipalities (South-Eastern Georgia) (Fig. 1). The river originates on the southern slopes of the Lesser Caucasus mountains, in the Algeti National Park, 1900 metres above sea level (Gamma Consulting LLC 2016). The total length of the river is 118 km, and the catchment area is about 762 km² (Lomsadze et al. 2016). The Algeti River is notable for the abundance of tributaries; it has 188 tributaries with a total length of 508 km (Gamma Consulting LLC 2016). Despite the extent of the river and its tributaries, the fish fauna of the Algeti River has never been studied and documented. In the early 1980s, an Algeti HPP was built on the river. In the absence of any prior studies of the fish communities, it is not possible to quantify the impact of the dam and reservoir on the fish community or on the ecosystems of the river.

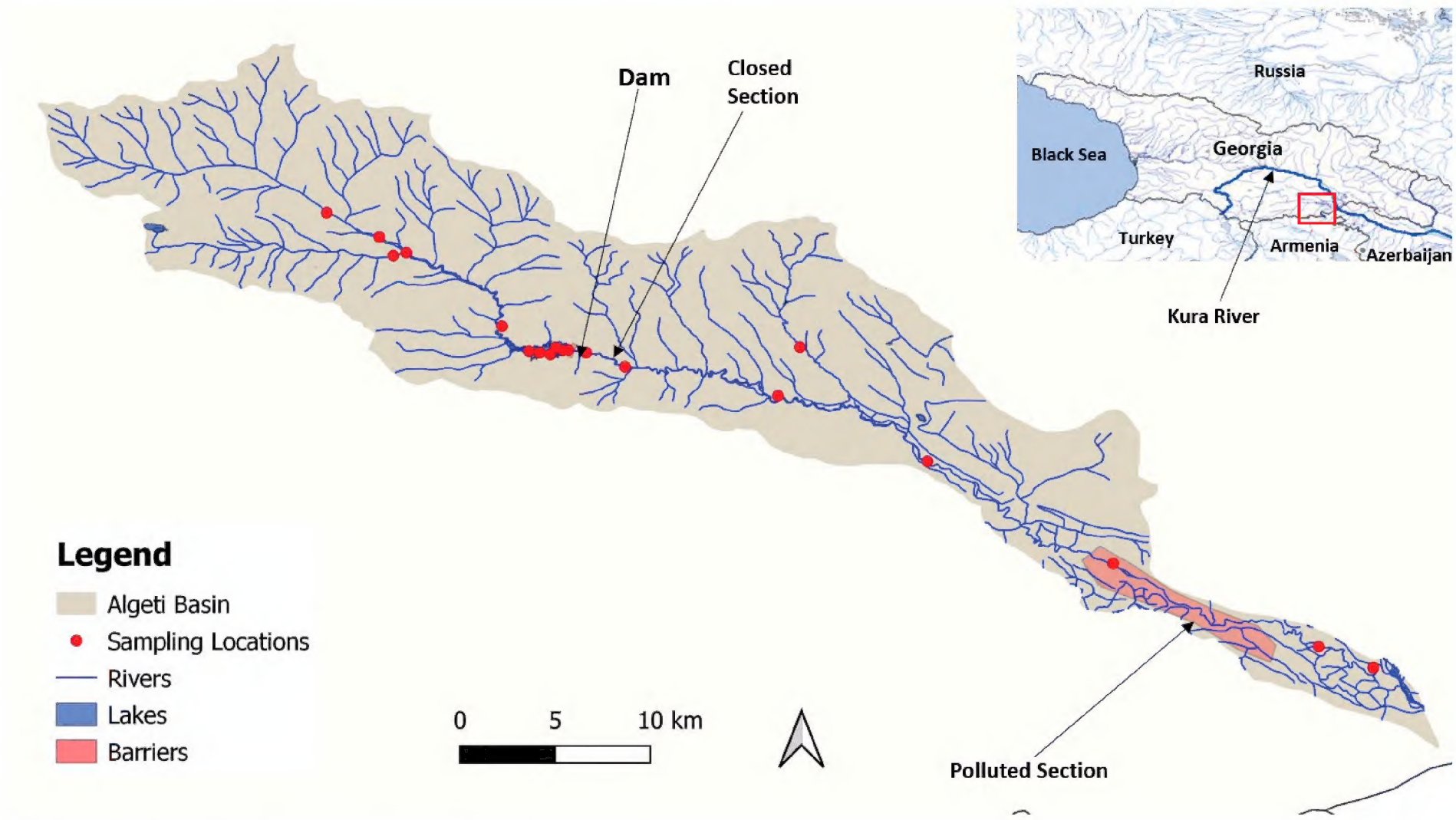


Figure 1. Algeti River basin with sampling locations.

Given these circumstances, our research aimed to establish a baseline of fish species diversity and distribution in the Algeti River and reservoir. An attempt has also been made to evaluate the impact of the dam on fish species' distribution and identify other anthropogenic factors affecting the river ecosystems.

Materials and methods

Fish were collected from the Algeti River between 2016 and 2022 from 17 localities. The aim of the fish sampling was to make an inventory of fish species occurring in the river, as well as to observe the distribution pattern of species above and below the dam and in the reservoir. Accordingly, the sampling was optimised to cover as much of the study area as possible (Fig. 1; Suppl Material 1). Fish samples were collected in accordance with the requirements of Georgian legislation (Order No. 21 of the Minister of Environmental Protection of Georgia; October 17, 2011; Tbilisi; "On approval of the rules for fishing for scientific-research purposes") (https://matsne.gov.ge). Depending on the characteristics of the habitat, the following fishing equipment was used: an electric fishing device - EFGI 650 (http://www.electric-fishing.de/index_e.html) in streams and rivers (shallow waters), cast and frame nets, and fishing rods. All specimens were identified in the field to species level using standard morphological characters (e.g., Kottelat and Freyhof 2007) and then released back to the water. After anaesthesia with MS-222, only a few specimens (1 to 10) for each species were preserved in 96% molecular grade ethanol for further morphological investigation in the laboratory, museum collection, and DNA barcoding purposes. As no barcoding results have yet been generated, this topic will not be discussed further in this manuscript.

Table 1. Fishes of Algeti River and Algeti Reservoir.

N	Common name	Scientific name	IUCN	RLG	UpS	Res	DoS
1	Kura barbell	*Barbus cyri* (De Filippi, 1865)	NE	NE	+	–	+
2	South Caspian sprilin	*Alburnoides eichwaldii* (De Filippi, 1863)	LC	NE	+	+	+
3	Kura loach	*Oxynoemacheilus brandtii* (Kessler, 1877)	DD	NE	+	–	+
4	Khramulya	*Capoeta capoeta* (Güldenstädt, 1773)	LC	NE	+	+	+
5	Caspian trout	*Salmo caspius* (Kessler, 1877)	NE	VU	+	–	–
6	Kura chub	*Squalius agdamicus* (Kamensky 1901)	NE	NE	+	+	+
7	Common carp	*Cyprinus carpio* (Linnaeus, 1758)	VU	NE	–	+	–
8	Gibel carp	*Carassius gibelio* (Bloch, 1782)	NE	NE	–	+	+
9	European catfish	*Silurus glanis* (Linnaeus, 1758)	LC	NE	–	+	–
10	River perch	*Perca fluviatilis* (Linnaeus, 1758)	LC	NE	–	+	–
11	Rainbow trout	*Oncorhynchus mykiss* (Walbaum, 1792)	NE	NE	–	–	+
12	Golden loach	*Sabanejewia aurata* (De Filippi, 1863)	LC	VU	–	–	+
13	Colchic gudgeon	*Gobio caucasicus* (Kamensky, 1901)	LC	NE	–	–	+
14	Stone moroko	*Pseudorasbora parva* (Temminck & Schlegel 1846)	LC	NE	–	+	+
15	European bitterling	*Rhodeus amarus* (Bloch, 1782)	LC	NE	–	–	+
16	Kura bleak	*Alburnus filippii* (Kessler, 1877)	LC	NE	–	+	+
17	Sharpbelly	*Hemiculter leucisculus* (Basilewsky, 1855)	LC	NE	–	–	+
18	Pike-perch	*Sander lucioperca* (Linnaeus, 1758)	LC	NE	–	+	–
19	Monkey goby	*Neogobius fluviatilis* (Pallas, 1814)	LC	NE	–	–	+

+ / - indicates the presence and absence of a species in a specific section of the study area. IUCN – International Union for Conservation of Nature; RLG – Red List of Georgia; UpS – Upstream Section; Res – Reservoir; DoS – Downstream section; EX – Extinct; EW – Extinct In The Wild; CR – Critically Endangered; EN – Endangered; VU – Vulnerable; NT – Near Threatened; LC – Least Concern; DD – Data Deficient; NE – Not Evaluated.

Results

Fish diversity in the Algeti Basin

A total of up to 350 individuals, representing 19 species across 19 genera and 10 families, were recorded in the Algeti River and reservoir (Table 1 and Suppl Mater 1). Of these, nine species are native to the Kura River basin (Fig. 2), while six (*Cyprinus carpio*, *Silurus glanis*, *Sander lucioperca*, *Perca fluviatilis*, *Gobio caucasicus*, and *Neogobius fluviatilis*) were introduced from Western Georgia (Black Sea drainage), and four (*Pseudorasbora parva*, *Carassius gibelio*, *Hemiculter leucisculus*, and *Oncorhynchus mykiss*) are invasive (Fig. 3) in the Caucasus region (Kuljanishvili et al. 2020, 2021). Notably, *N. fluviatilis*, not native to the Caspian Sea drainage, was widely introduced into Armenia in the late 20th century (Pipoyan and Tigranian 1998). Its first record in Eastern Georgia was in 2021 in the Debeda River, near the Georgia-Azerbaijan border (own unpublished data); thus, this Algeti record is the second evidence of its expanded range in the region. This species likely spread into the Algeti independently from Armenian populations or was introduced as a hitchhiker with *P. fluviatilis* from Western Georgia, a common, though often illegal, practice by anglers. Among the invasive species in the Algeti River and reservoir, *O. mykiss* appears to have escaped from a fish farm downstream of the Algeti HPP dam. The other invasives were likely introduced by anglers. The HPP dam on the Algeti River lacks a fish pass, isolating upstream populations from downstream ones. Furthermore, the reservoir's mass of water creates distinct habitats absent in the river. Consequently, the Algeti River basin can be divided into three relatively

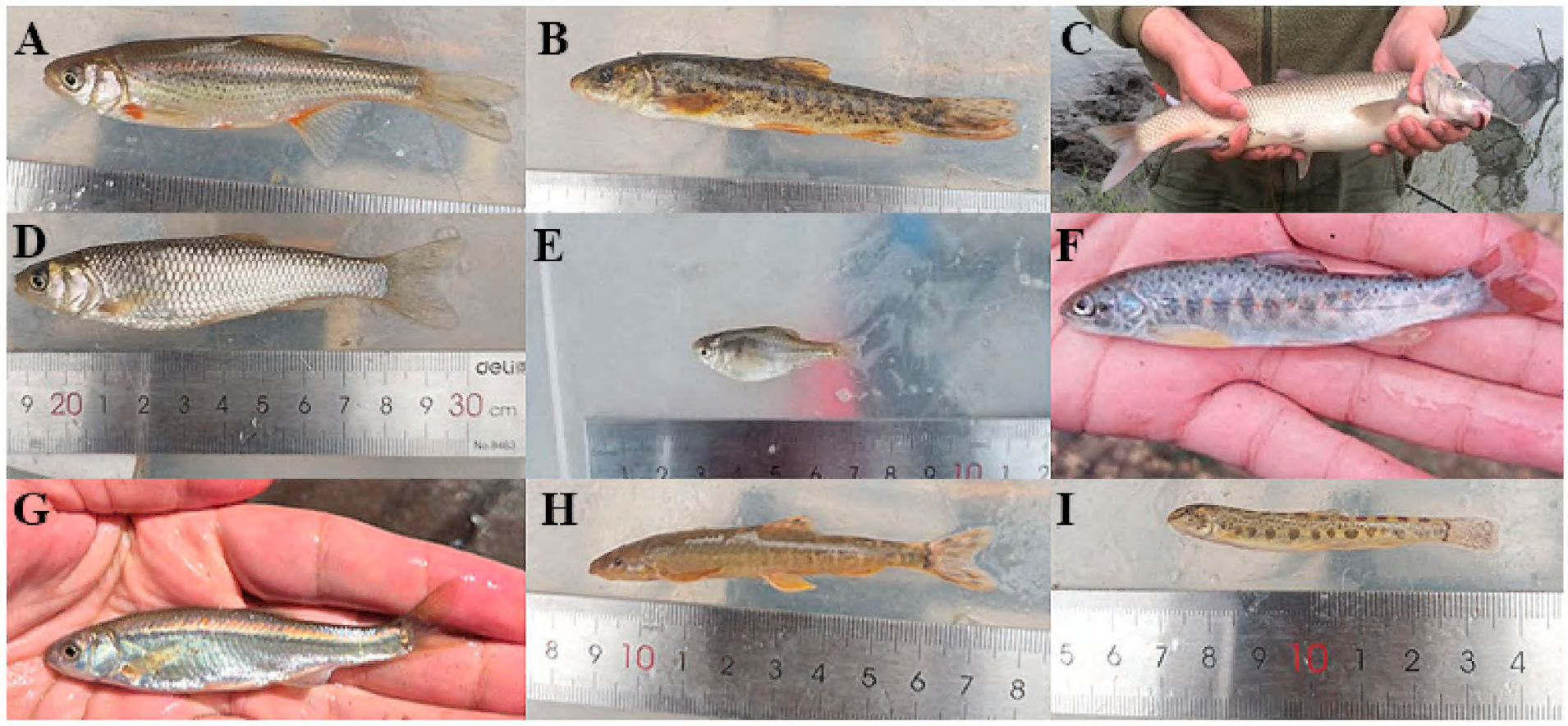


Figure 2. Native fish species to the Algeti River basin. **A** – Kura spirlin (*Alburnoides eichwaldii*); **B** – Kura barbell (*Barbus cyri*); **C** – Khramulya (*Capoeta capoeta*); **D** – Kura chub (*Squalius agdamicus*); **E** – European bitterling (*Rhodeus amarus*); **F** – Caspian trout (*Salmo caspius*); **G** – Kura bleak (*Alburnus filippii*); **H** – Kura loach (*Oxynoemacheilus brandtii*); **I** – Golden loach (*Sabanejewia aurata*). © Epitashvili G and Ramazashvili G.

Figure 3. Introduced/invasive species to the Algeti River basin. **A** – Gibel carp (*Carassius gibelio*); **B** – Common carp (*Cyprinus carpio*); **C** – Monkey goby (*Neogobius fluviatilis*); **D** – Sharpbelly (*Hemiculter leucisculus*); **E** – Stone moroko (*Pseudorasbora parva*); **F** – Colchic gudgeon (*Gobio caucasicus*); **G** – Rainbow trout (*Oncorhynchus mykiss*); **H** – Zander (*Sander lucioperca*); **I** – European perch (*Perca fluviatilis*); **J** – Wels catfish (*Silurus glanis*). © Epitashvili G and Ramazashvili G.

isolated parts: (1) the upstream section above the reservoir, (2) the reservoir itself, and (3) the downstream section below the reservoir (Fig. 4).

Upstream section of the Algeti River

The upstream Algeti section spans from the river's headwaters in Algeti National Park, situated on the Trialeti ridge's southern slopes near Kldekari Castle, to the Algeti Reservoir. The reservoir's variable water level marks the lower boundary, or confluence point. The Algeti river's headwaters, within the National Park, are well-protected from human impact. This upper section features a steep, narrow riverbed, largely covered by boulders and large sandstones, and with a fast flow rate. Near Manglisi village, the riverbed's slope decreases, and the speed of flow becomes more reduced. Here, the riverbed widens, and the water temperature significantly rises due to the approximately 900-metre elevational drop from the headwaters. Seasonal floods contribute to substantial downstream accumulation of debris, sludge, and household waste. This section is home to six fish species (Table 1); notably, *Salmo caspius* is the only species found within the National Park, with its downstream limit located a few kilometers upstream from the reservoir (N41.627245, E44.479057). *Alburnoides eichwaldii* and *Barbus cyri* are prevalent throughout the upstream section, excluding the headwaters; *Capoeta capoeta* ranges from the reservoir to Algeti village (N41.668247, E 44.391128), while *Oxynoemacheilus brandtii* is found only near the Manglisi bridge (N41.675471, E44.379027), and *Squalius agdamicus* is restricted to the section from the reservoir to near Abrameti village (N 41.604459, E 44.488717), at 800 metres above sea level. Notably, this marks its upper distribution limit within the river.

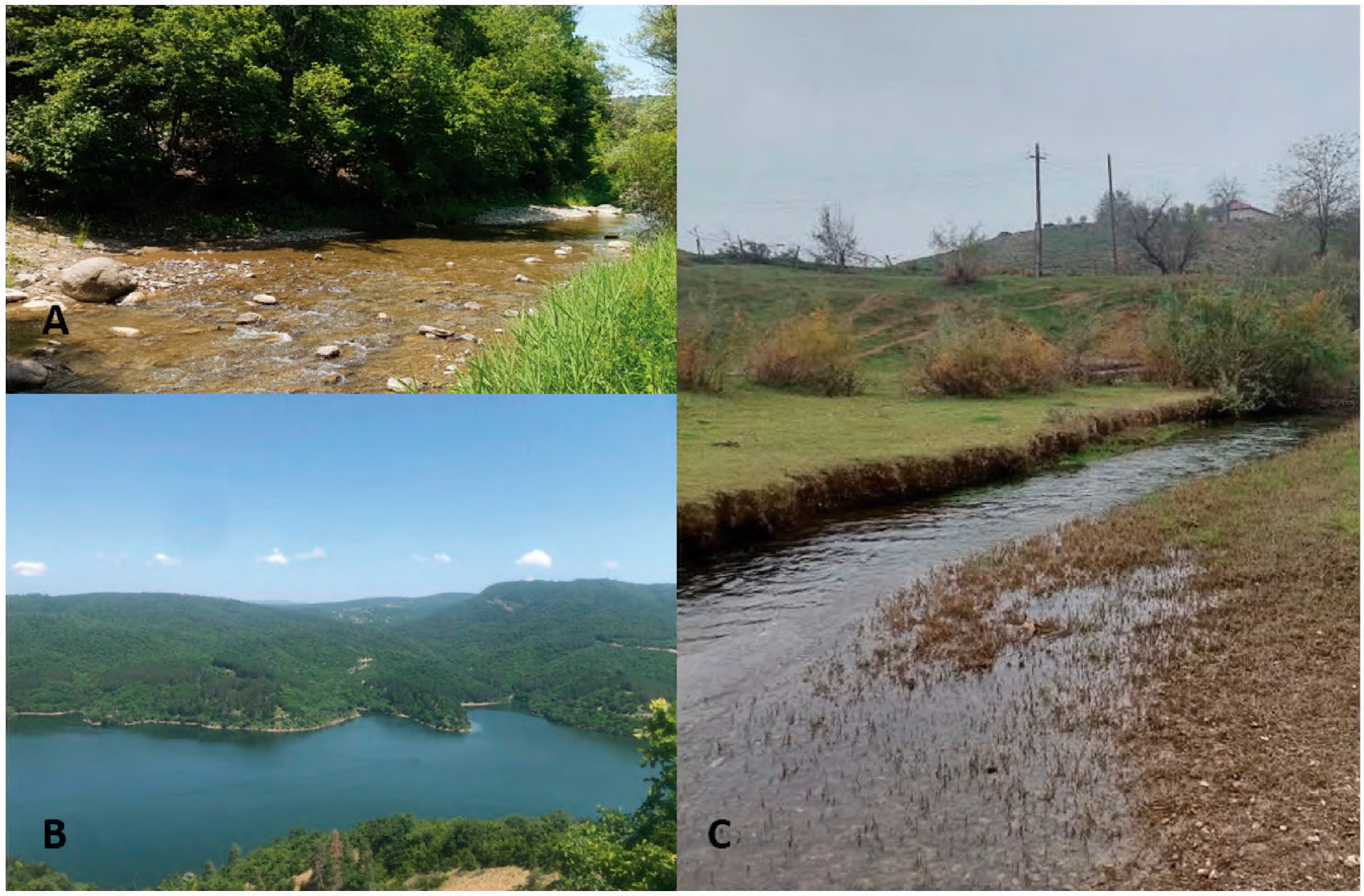
The Reservoir

The Algeti Reservoir was commissioned in 1983, primarily to store water for irrigation. At maximum water level, the reservoir's surface area reaches 2.3 km², and its maximum depth is about 42 m. Locals report that prior to the dam's construction, this section of the river was known for its abundant fish, with poaching being common. The lack of a fish passage on the dam has severely disrupted fish migration between upstream and downstream areas.

A survey of the reservoir revealed ten fish species (Table 1). The most abundant species caught in the Algeti Reservoir is *Perca fluviatilis* (33.5% of the total catch), introduced from Western Georgia. Four other species, *Carassius gibelio*, *Squalius agdamicus*, *Capoeta capoeta*, and *Silurus glanis*, are also common, each representing 10-17% of the total catch (Fig. 5). The remaining species, *Sander lucioperca*, *Cyprinus carpio*, *Alburnoides eichwaldii*, *Alburnus filippii*, and *Pseudorasbora parva*, are relatively rare, comprising less than 2% of the total catch.

Downstream section of the river

The downstream section of the river begins at the dam and extends to Kesalo II village in the Marneuli municipality, where it joins the Mtkvari (Kura) River. Water is discharged from the reservoir through three main pipes and one emer-



Figures 4. A – Upstream part of the Algeti River (Near vill. Algeti); **B** – Algeti Reservoir; **C** – Downstream part of the Algeti River (Near the Kura River confluence). © Epitashvili G and Ramazashvili G.

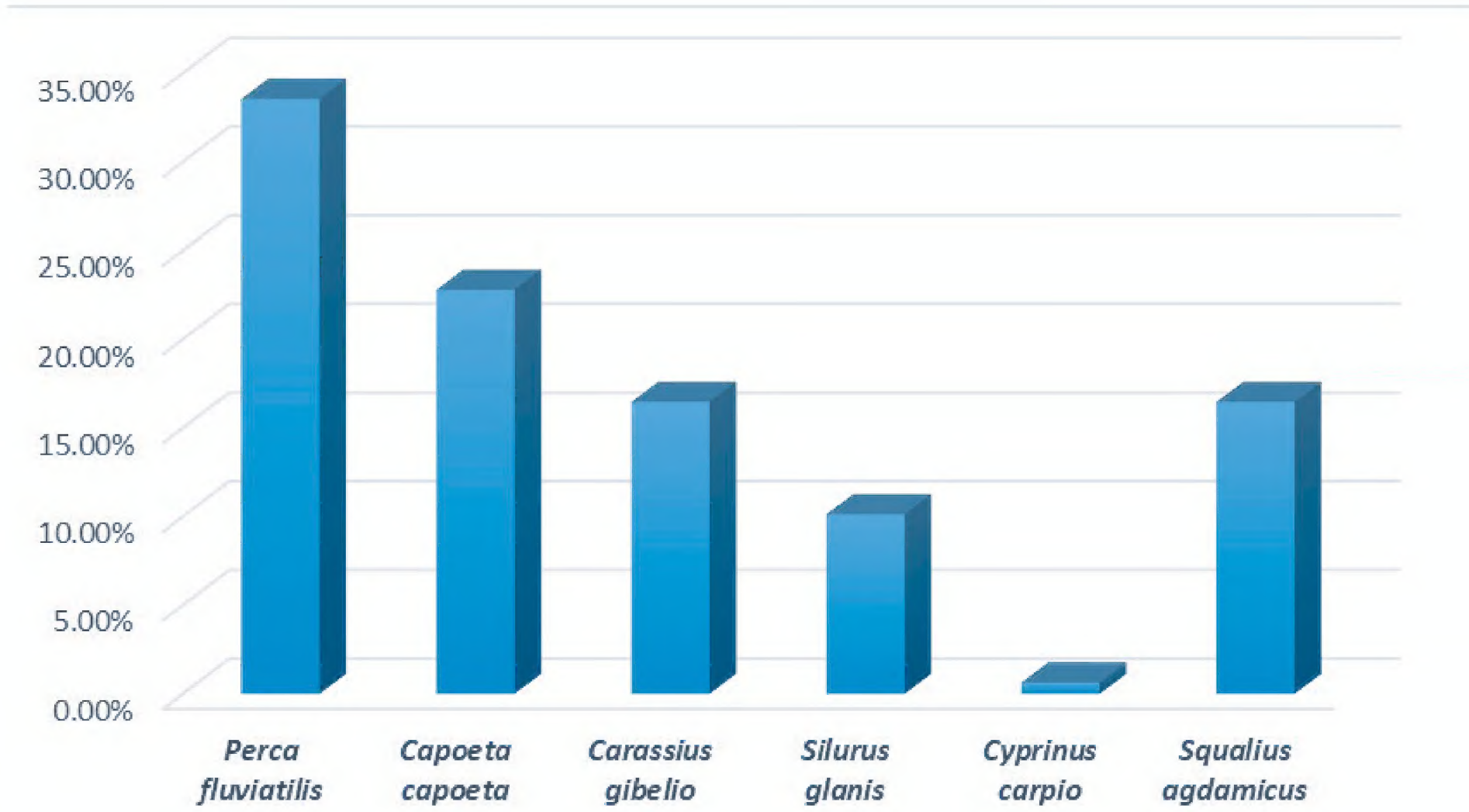


Figure 5. Percentage distribution of commercially important fish in the Algeti Reservoir during the 2020-2021 survey.

gency pipe. The first main pipe connects to the lower riverbed, the second to the former HPP (no longer operational), and the third to the reclamation station. Although not studied, we assume the pipes' flow is rapid enough to impede upstream fish migration. The downstream section is characterised by numerous human-modified habitats. Anthropogenic impacts, such as wastewater, household waste pollution, and riparian forest degradation, are prevalent and intensify towards the Kura confluence.

This section, with 14 fish species (Table 1), is the most diverse. Fish species distribution is heterogeneous. Only three species — *Alburnoides eichwaldii*, *Barbus cyri*, and *Oncorhynchus mykiss*, are found immediately below the dam. The latter entered the river from a trout farm near Tbisi village (N41.588762, E44.538311), just hundred of metres from the dam. In the mid-downstream section, near Marabda village (N41.518376, E44.756174), eight species were caught: *A. eichwaldii*, *B. cyri*, *Gobio caucasicus*, *Alburnus filippii*, *Squalius agdamicus*, *Capoeta capoeta*, *Oxynoemacheilus brandtii*, and *Sabanejewia aurata*. The water level drops significantly from the Marneuli municipality border to the Kura confluence, due to irrigation use ("Reclamation of Georgia" LLC, 2021). Simultaneously, household waste and sewage water pollution dramatically increase, with recent detections of heavy pollution (ammonium compounds, sulphates, phenols, heavy metals, and petroleum products) (Lomsadze et al. 2016). A field survey in this area (N41.403818, E45.001482) yielded no fish species. In the lower downstream section near Kesalo II village (N41.390930, E 45.033301), seven species were observed: *C. capoeta*, *B. cyri*, *Rhodeus amarus*, *Pseudorasbora parva*, *Carassius gibelio*, *Hemiculter leucisculus*, and *Neogobius fluviatilis*. These species, except *C. capoeta* and *B. cyri*, are unique to this section, indicating their entry into the Algeti from the Kura River.

Discussion

Notes on fish distribution, ecology and vulnerability in Algeti River

Human intervention has significantly impacted the species composition and distribution of fish in the Algeti River. Overall, the native fauna has been severely altered throughout the river's length. The dam and reservoir construction created extensive habitats for native species like *Capoeta capoeta*, *Alburnoides eichwaldii*, *Squalius agdamicus*, and *Alburnus filippii*, now more abundant than expected in the corresponding river sections. *Capoeta capoeta* populations from the reservoir migrate upstream to spawn in the river's fast currents, a typical behaviour supported by the age distribution in our catch. Conversely, *A. eichwaldii* is abundant in the upstream Algeti River, suggesting it spends much of its life cycle there and reproduces in the reservoir's shallow areas. This view is supported by *A. eichwaldii* individuals only being observed in the reservoir during their spawning period (May-June), at maturity stages 3 and 4. *Squalius agdamicus*, considered a riverine species, is found in all three river sections. However, it is primarily restricted to the river mouth and reservoir, with few individuals caught in the lower upstream flow. It appears to use the reservoir as a feeding environment, due to the higher abundance of prey in this area of the catchment, an assessment confirmed by size distribution (upstream individuals were much smaller than those in the reservoir). *Alburnus filippii*, has a

similar distribution to *S. agdamicus*, and does not seem to utilise the upstream river; its population is limited to the reservoir. Two other small-bodied native species, *Barbus cyri* and *Oxynoemacheilus brandtii*, which likely originally occurred throughout the river, now have isolated populations in the upstream and downstream sections. The dam and the heavily polluted river section near Marneuli act as insurmountable barriers for these species. *Salmo caspius* also only occurs in the isolated upstream population. In the downstream section, *A. filippii*, *Rhodeus amarus*, *Gobio caucasicus*, and *Sabanejewia aurata* are restricted to the river mouth, and do not approach the dammed area. The range of these species within the Algeti River appears heavily contracted due to anthropogenic factors (dam, pollution, and introduced species).

The introduction of non-native species poses a threat to native fauna and the environment, although quantifying this impact remains challenging due to the lack of baseline data. Nevertheless, the abundance of non-native species, including aggressive predators like *Perca fluviatilis* and strong bioturbators like *Carassius gibelio*, has a significant impact. Non-native species distribution shows at least six species in the downstream section and another six in the reservoir, while the upstream section remains free of non-native species. This pattern appears attributable to limited local species releases and the less favourable environmental conditions for non-native species upstream. Only *Cyprinus carpio* was introduced legally into the Algeti Reservoir; this was done for aquaculture purposes soon after the reservoir was put into operation, about 40 years ago (pers. obs.). However, its population is now endangered. Fishing efforts in the last two years yielded only one individual in 2021, and local anglers confirm (pers. comm.) the severe depletion of the carp population. The introduction of other species into the Algeti River system occurred either accidentally or intentionally and illegally by anglers. Deliberate illegal introductions include *C. gibelio* (an older introduction, possibly accidental with *C. carpio* fry), *Silurus glanis* (approximately 16 years ago), *P. fluviatilis* (2016-2017), and *Sander lucioperca* (2022), all represent species of interest to anglers (data from local fishermen and social networks; see also Kuljanishvili et al. (2020), Mumladze et al. (2022), Epitashvili et al. (2023b)). According to local fishermen, the populations of all species in the reservoir, important for fishing, have recently declined and are now at extremely low densities due to the introduction of *P. fluviatilis*. Accidental introductions include *Pseudorasbora parva*, *Hemiculter leucisculus*, *Neogobius fluviatilis*, *Gobio caucasicus* and *Oncorhynchus mykiss*. These species might have spread as hitchhikers with other species or entered the river independently via the Kura River. All of them, except *O. mykiss*, are recorded in the downstream part of the river, while *O. mykiss* appears to have escaped from nearby trout hatcheries.

Threats and conservation of the Algeti River fishes

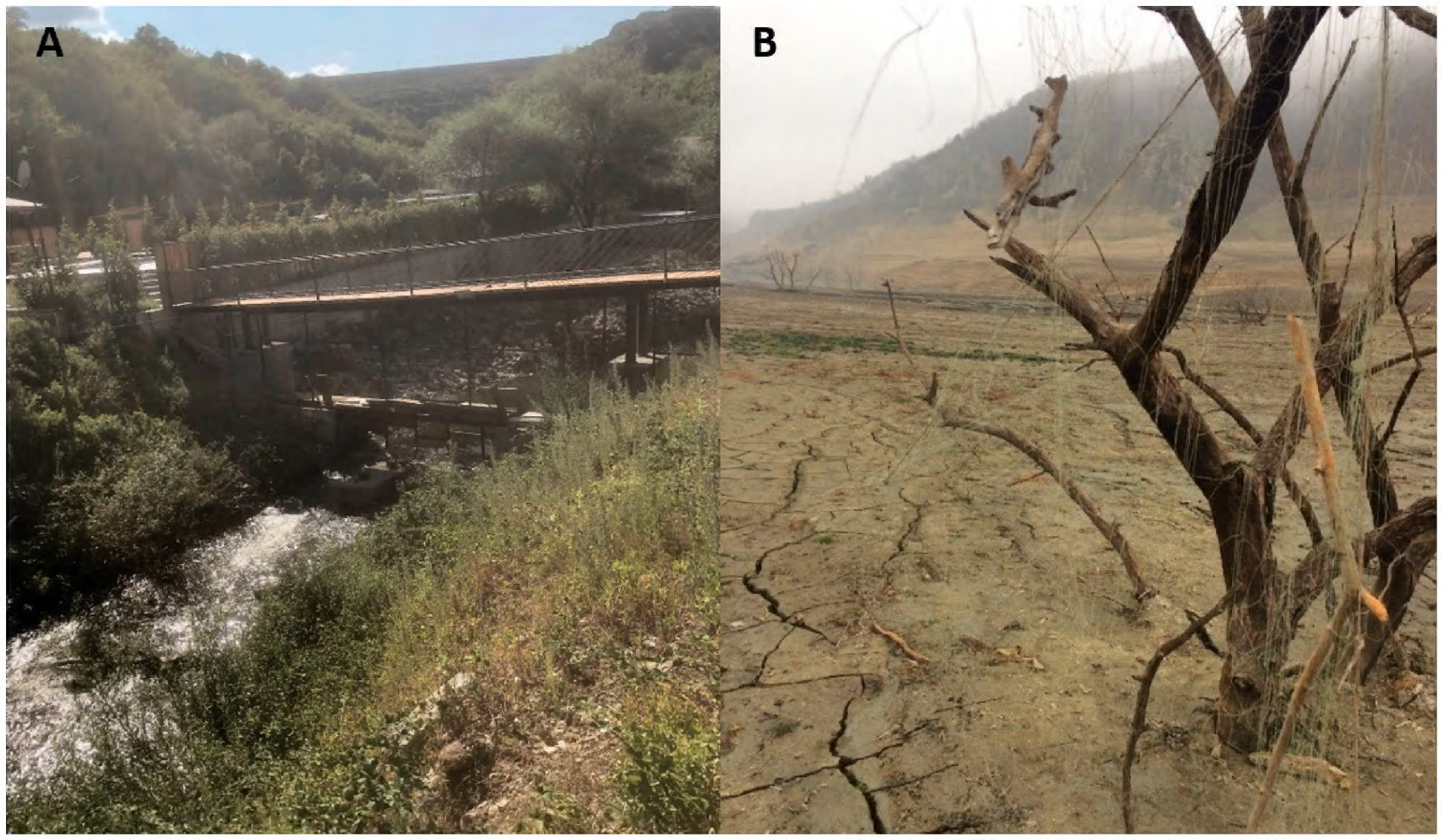
The fish fauna and ecosystems in the Algeti River basin are under significant anthropogenic pressure. The most pronounced threats include habitat fragmentation, pollution, invasive species, and illegal activities (poaching, non-native species releases, and habitat modification), which collectively exacerbate the effect. The dam's construction, lacking a proper fish passage, severely limits native fish migration (at least towards upstream) and results in population

isolation. Additionally, another barrier near Tbisi village, a steel construction built by a nearby restaurant owner (Fig. 6A) for rainbow trout releases, is illegal and violates Article 48 of the "Code of Administrative Offenses of Georgia" (https://matsne.gov.ge), further disrupting connectivity. In the mid-downstream section, there is heavy pollution from household waste and sewage peaks at the Marneuli municipality. The riverbed in this area is covered with municipal sediment (sludge, fine fraction), reaching 50-70 cm deep in some places. This section is nearly sterile, devoid of fish and even macroinvertebrates. These barriers likely cause complete isolation of the upstream segment and the reservoir. Several native species to Kura River basin, such as *Luciobarbus mursa*, *Acanthobrama microlepis*, and *Alburnus chalcoides*, are still present in the Kura River and would be expected to utilise the Algeti River, but do not enter this section due to the pollution. The remaining native species upstream of the reservoir are threatened with local extinction. The isolated headwater trout population is particularly vulnerable, and within Algeti National Park, a decline in the trout population is clear despite the lack of comprehensive monitoring data, even though the National Wildlife Agency of Georgia has released trout fry multiple times between 2020-2025.

Non-native and invasive species pose another substantial threat, significantly impacting the river and replacing native fauna. In the reservoir, non-native species, including the invasive crayfish *Pontastacus leptodactylus* (Blaha et al. 2021), which was found in *Silurus glanis* gut contents, have been introduced; leading to the establishment of a homogenised biota with widespread non-native taxa, while the local fauna experiences significant declines. Currently, half of the fish species in the river are introduced. However, beyond speculations and opinions from local anglers, research-based understanding of non-native species' effects on local fauna and ecosystems is lacking.

Poaching remains a significant negative factor throughout the river and reservoir. For instance, during periods of lowered water levels in the Algeti Reservoir, numerous abandoned gill nets were observed (Fig. 6B). Although this poaching primarily targets introduced species, abandoned nets (and other poaching activities), coupled with limited connectivity and pollution, pose a severe threat to Algeti native fish species. In addition, habitat modification, degradation, and water abstraction have also impacted the Algeti River. In most sections, the surrounding riparian forests have been cleared, leading to excessive sediment input during rainy periods. Artificial deepening or modification of the riverbed is also common, especially near settlements. Near the Marneuli municipality, the irrigation system extracts water from the river to irrigate 2034 hectares of agricultural land (“Reclamation of Georgia” LLC, 2021), significantly affecting fish migration and water quality. Consequently, downstream of Marneuli municipality, the river flow diminishes significantly to ecological flow during dry seasons.

In conclusion, the ecological condition of the Algeti River basin is critical. Therefore, it is essential to implement necessary measures to mitigate negative pressures and preserve the habitats and biodiversity of this water body. The river's headwaters are part of a protected area system, and two species found in the river – *Sabanejewia aurata* and *Salmo caspius* – are listed as vulnerable (VU) in the Red List of Georgia. However, these conservation designations alone are insufficient to safeguard local fish fauna. Greater efforts, such



Figures 6. A – closed section of the Algeti River near Tbisi village; **B** – a snapped net at the bottom of the Algeti Reservoir. © G. Ramazashvili

as law enforcement against poaching and other illegal activities, pollution control, and habitat modification management, are needed to mitigate biodiversity loss in the Algeti River.

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Additional information

Conflict of interest

The authors have declared that no competing interests exist.

Ethical statement

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Author contributions

GE, GR, BJ, LM – research conceptualisation; GE, GR – investigation and data collection; GE, GR, LM – data analysis and interpretation; GE, GR – writing – original draft in Georgian and translation; LM – writing final draft; BJ, LM – writing, review and editing.

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Data availability

All of the data that support the findings of this study are available in the main text or Supplementary Information.

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Supplementary material 1

Presence-absence data of Fish in Algeti River

Authors: Epitashvili et al.

Data type: occurrence

Explanation note: Detailed information on fish species composition from Algeti river and reservoir.

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